



A Seven-Foot-High Antenna with 9-dB Gain

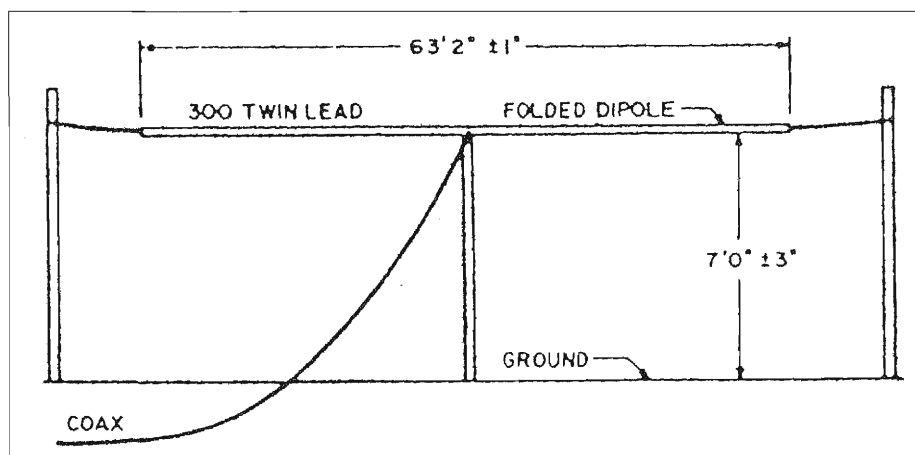
The 40-Meter NVIS Antenna

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I am not an antenna expert, but I just like to mess with them. I have found an antenna that worked for me and I thought ER readers might like to try it. My friend Don Janota (K5ALX) suggested that I try a NVIS (Near Vertical Incidence Sky-wave) antenna from the October 1969 issue of 73 Magazine, pages 8 to 1, by Ed Dusina (W4NVK). Ed called it a super-gain, 40-meter antenna.

We have a group of friends that grew up in San Antonio but are now spread all over Texas, 200 to 300 miles apart (see Electric Radio #181 June 2004 P10). We have a SSB QSO on 40 meters every Sunday afternoon on 7.266 kc, from 5-6 PM Central Standard Time. This NVIS antenna makes the difference between not being able to even hear a station to being able to talk to them. W8SYD, Byron Armstrong, compared it to his 160-meter

G5RV that is 50' high, and his antenna had 10-db signal gain in both Dallas and Houston, Texas. As an added bonus, this antenna has a rejection of 15db of foreign broadcast. Some days this rejection really makes a difference. If both stations used this antenna you would have a signal/noise improvement of 29db! Is this the kind of gain you get with a full size beam? The 73 Magazine article used a 300-ohm, twin-lead, folded dipole fed with 50-ohm coax, but after trying that I changed my antenna to a regular dipole fed with 50-ohm coax. I used the dipole because it was easier to adjust the length to set the SWR. W4NVK used 63'-2" for his folded dipole tuned for 7.250 kc. My dipole took 59'-2" because of a metal roof that is close and power lines on 2 sides. Start long, and fold it back until your SWR is the lowest. The MFJ SWR Analyzer is cool to do this. You install your dipole 7"-0" above the ground (This needs to be close). I used 3 pieces of 1" PVC pipe standing up to make sure that



My antenna was based on the 40-meter, super-gain NVIS antenna from page 8 of the October 1969 issue of 73 Magazine.

I kept the correct spacing. Directly below the antenna, lay a ground wire directly on top of the ground. I made mine 70'-0" long, but you might try the regular dipole length plus 5%. I used #14 solid copper wire (Lowe's \$15.00 for 500' in black, green, or white). If you mow the grass low before you put it down you can pin it down with V-wire clips and mow over it when the grass grows back. Next, you need to go 6'-0" to one side parallel with the ground wire directly below the dipole and add another 70'-0" ground wire, and then go to the other side and add a third ground wire 6'-0" to the other side also parallel with the ground wire directly below the dipole. What you have made is like a 2-element beam pointing straight up with 3 reflectors laying on the ground.

I use mine with my Viking Valiant and imported ICOM. In both cases, I use them without an antenna tuner. This

antenna would make a really nice portable antenna for doing hurricane work that you could set up in the grass at a motel or even on the side of the road. You could carry one in your RV. I used one for Vintage Field Day. You could use RG-8X coax and everything would go in the trunk of a car. I asked my friend Don about adding a director on top but he said you would defeat yourself and you would not have the 200 to 300 mile range in daytime or the 1000 mile range at night. The NVIS should work on 80 or 160 meters if you scale its dimensions like any other antenna. You will also need to change the height above ground to scale and the spacing of the reflectors to scale. NVIS antennas are used by the military, in the jungles and in the mountains. If you try one, you might like it!

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